

Trichomoniasis

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Objectives

- Name three health disparities associated with *trichomoniasis*.
- What are the screening recommendations for *trichomoniasis*?
- What are the clinical symptoms of *trichomoniasis*?
- Name three ways to diagnosis *Trichomonas vaginalis*.
- How is *trichomoniasis* treated in HIV negative and HIV positive patients?

Epidemiology: Global

- *Trichomonas vaginalis* (TV) is the causative agent of *trichomoniasis*.
- One of the most common curable sexually transmitted infection (STI) in the world.
- 101 million cases of *trichomoniasis* in adults aged 15-49 years.

Global Prevalence

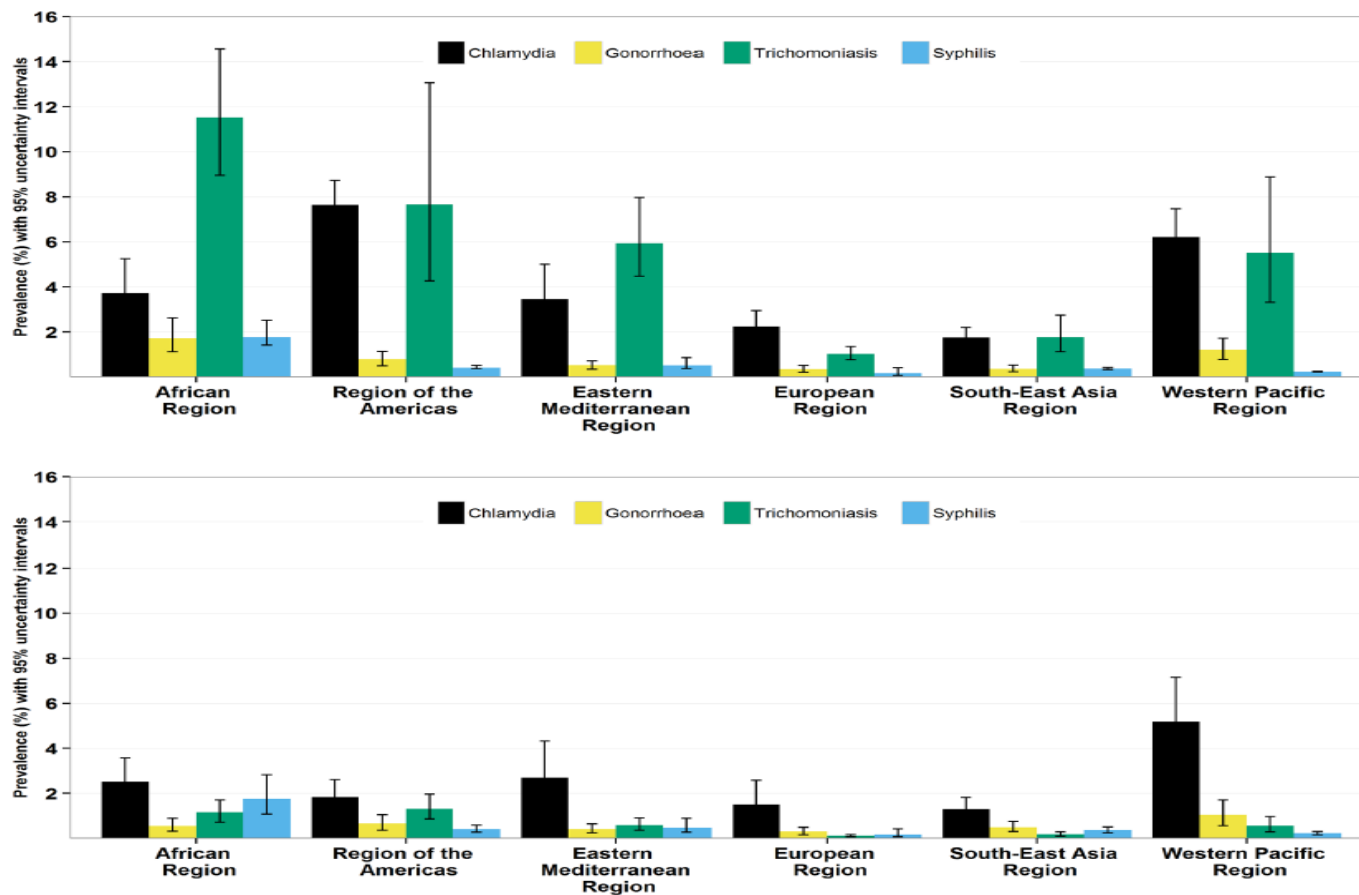


Fig 2. Estimated prevalence (and 95% UI) of chlamydia, gonorrhoea, trichomoniasis, and syphilis in women and men aged 15–49 years by WHO region, based on 2005–2012 data.

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Epidemiology: U.S.

- 1.1 million new TV infections occurs annually in the United States (US).
- An estimated 3.7 million people are infected with *trichomoniasis* in the US.
- Compared to 270 thousand cases of *Neisseria gonorrhoeae* (GC) and 1.6 million cases of *Chlamydia trachomatis*(CT).

Meites, Satterwhite et al

Health Disparities

- Health disparities are seen in the epidemiology of TV:
 - Sex
 - Women are more commonly infected with TV
 - Age
 - More common in women over 40
 - Race
 - African American and Hispanic women are more commonly infected with TV

Miller et al, Sutton et al

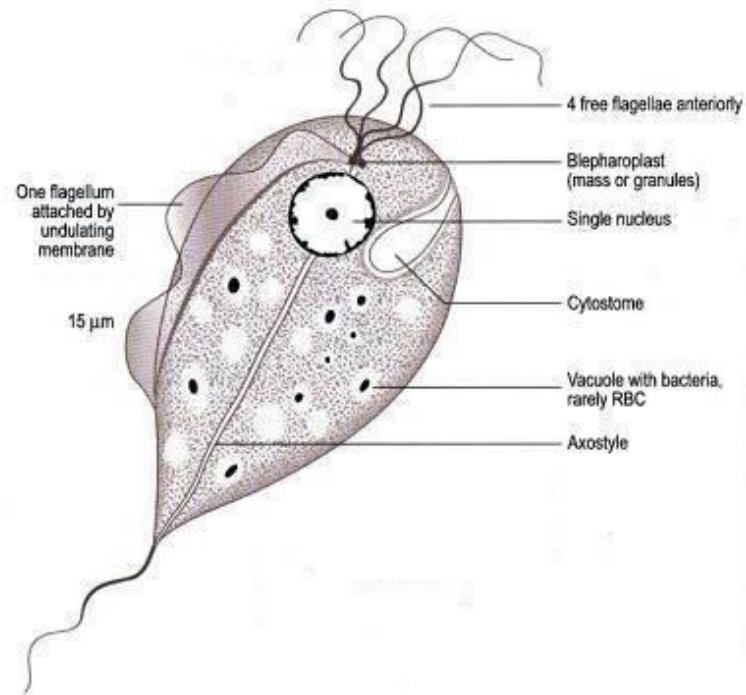
Health Disparities

- TV is more common in certain populations:
 - Incarcerated individuals
 - 9%-32% of incarcerated women and 2%-9% of incarcerated men are infected with TV
 - Patients who attend STD clinics
 - A prevalence as high as 14.6 % in women has been seen
 - People who are infected with HIV
 - The prevalence of trichomoniasis was found to be 6.1%-52.5% among HIV positive women vs. 3.2%-34% among HIV negative women

Workowski and Bolan, Alcaide et al, Kissinger and Adamski

Pathophysiology

- TV is a single-celled parasitic protozoan.
- It contains flagella which enables it to move.
- The infection is most commonly passed between partners during penile-vaginal sex.
- Low prevalence in MSM (Kelley et al.).
- TV has limited survival outside the human body.



Host Environments

- TV Infection commonly seen in:
 - Vulva
 - Vagina
 - Urethra
- TV Infections **not** commonly seen in:
 - Rectum
 - Mouth
 - Hand

Clinical Symptoms

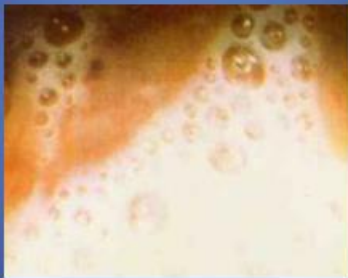
- Asymptomatic
 - **Most** infected persons (70%–85%) have minimal or no symptoms. (Satterwhite et al)

Clinical Symptoms

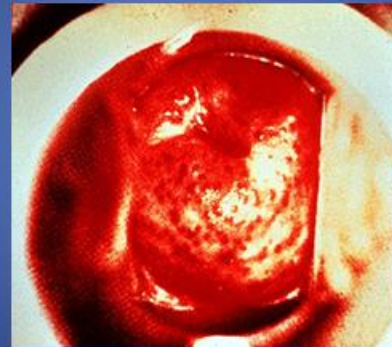
Gender	Symptoms		
Females	Malodorous vaginal discharge	Vaginal erythema and irritation	Burning during urination
Males	Urethritis	Burning during urination	Burning during ejaculation

Clinical Symptoms

Trichomonas vaginalis: Frothy vaginal discharge



Trichomonas vaginalis: Strawberry cervix



Screening Recommendations

- In 2015, the CDC recommended that screening for TV be considered for women in high prevalence setting such as correctional facilities and STI clinics.
- The CDC further advised that screening decisions should be based on the local epidemiology of *trichomoniasis*.

Diagnosis

- Nucleic Acid Amplification Testing (NAAT)
- Rapid Laboratory Testing
- Wet Mount Microscopy



NAAT

- APTIMA T. vaginalis assay (Hologic Gen-Probe, San Diego, CA)
- Uses transcription-mediated amplification to detect TV.
- Sensitivity and specificity is 95%-100%.
- FDA approved for use on urine, cervical, and endocervical specimens in women.
- Also used on male urine and urethral specimens.

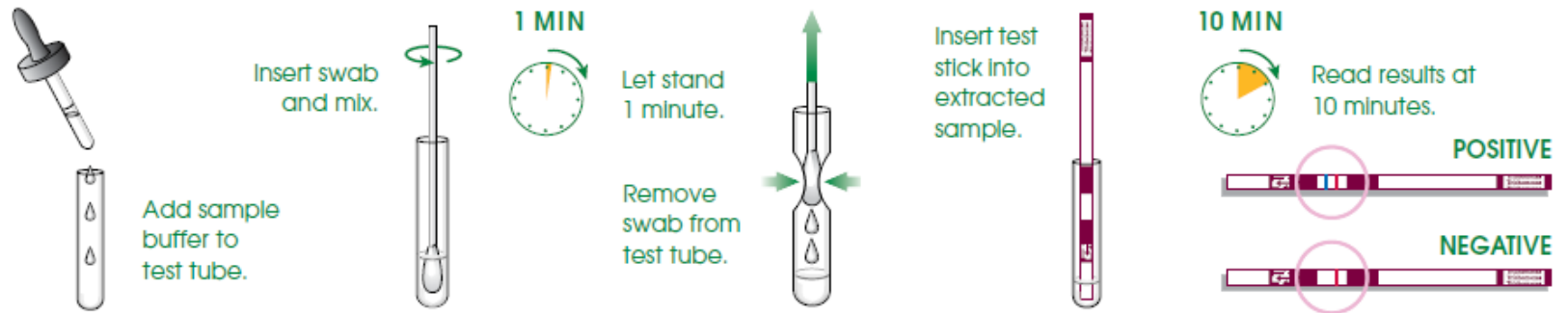
OSOM Trichomonas Rapid Test

(Sekisui Diagnostics, Framingham, MA)

- Antigen detection Test
- FDA approved for:
 - Vaginal secretions
- Results are available within 10 minutes
- Sensitivity
 - 82%-85%
- Specificity
 - 97%-100%

OSOM Trichomonas Rapid Test

TEST PROCEDURE / RESULTS



Affirm VP III

(Becton Dickinson, Sparks, MD)

- DNA hybridization test
 - Detects TV, *G. vaginalis*, and *Candida albicans*
- FDA approved for:
 - Vaginal secretions
- Results are available within 45 minutes
- Sensitivity
 - 63%
- Specificity
 - 99.9%



Wet Mount

- Microscopic evaluation of genital specimens.
- The most common method for diagnosis.
- Convenient and low cost.
- Sensitivity for wet mount is low:
 - Vaginal Specimens: 51%-65%
 - The sensitivity is lower for urethral, urine, and semen specimens.

Trichomonas vaginalis



Treatment

- Recommended
 - Metronidazole 2 grams orally (single dose)
 - Tinidazole 2 grams orally (single dose)
- Alternative
 - Metronidazole 500 mg orally BID for 7 days
- Cure Rates
 - Metronidazole: 84%-98%
 - Tinidazole : 92%-100%

Management Considerations

- Persons infected with TV should abstain from sex until:
 - They have completed treatment
 - Their partner has completed treatment
- Testing for other STI's including HIV and Syphilis should be done in patients infected with TV.

Follow-up

- High rate of reinfection
 - The rate of reinfection is up to 16.5% (Peterman et al.).
- It is recommended that a test for reinfection for GC, CT, and TV be done in 3 months for women.
- A test of cure can be done with NAAT 2 weeks after treatment.

Adverse Effects

(Untreated infections are associated with)

Females	Males
Low birth weight	Increased risk of prostatitis
Preterm delivery	Increased risk of nongonococcal urethritis
Increased susceptibility to Human Immunodeficiency virus (HIV)	
Pelvic inflammatory disease in HIV positive women	

Special Populations

- Detained Adolescents
- HIV Infected Patients
- Pregnant Women

Detained Adolescents

- Incarcerated and detained adolescents are at high risk for STI's (Romero et al.).
- Limited information is currently available regarding the prevalence of TV in incarcerated and detained youth.

Detained Adolescents

- NAAT for TV was conducted on all adolescent and young adults detained at the FCJDF between 4/5/2016-6/28/2017 who consented to STI testing.
- *Trichomoniasis* was identified in 5 % of the detainees at the FCJDF (n=144).
 - It was not identified in any of the males tested
 - It was identified in 10% of the females tested

HIV Infected Patients

- Women who are positive for TV are at higher risk of acquiring and transmitting HIV.
- Possible Mechanisms:
 - Altering Vaginal flora and PH
 - Compromise to the mechanical barrier
 - Suppresses the innate immunity of the vagina

HIV Infected Patients

- TV treatment has been associated with reduced HIV genital shedding.
- The rate of reinfection is 8%-20% in HIV positive women.
- 500 mg of metronidazole orally twice daily for 7 days has been shown to be a more effective in treatment of TV infection in HIV positive women.

Pregnant Women

- Routine screening in asymptomatic pregnant women is not recommended.
- Symptomatic pregnant women, regardless of pregnancy stage, should be tested and treated.
- Perinatal transmission of TV infection is uncommon.
- The recommend treatment in pregnant women is 2 grams of metronidazole orally.

Summary

- *Trichomoniasis* is the most common curable STI in the US.
- TV infections are seen more in African American women over 40 years old.
- There is an increased prevalence of *trichomoniasis* in incarcerated individuals, patients who attend STI clinics, and HIV infected patients.
- *Trichomoniasis* is most commonly transmitted through penile-vaginal sexual intercourse.
- Most patients who are infected with TV are asymptomatic.

Summary

- The CDC recommends that screening for TV be considered for women in high prevalence settings.
- The most sensitive and specific way to diagnosis TV is with NAAT.
- Metronidazole 2 grams orally is the recommended treatment in HIV negative patients.
- Metronidazole 500 mg orally BID for 7 days is the recommended treatment in HIV positive patients.
- Symptomatic pregnant women should be screened for TV and if positive be treated with metronidazole 2 grams orally.

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Questions

